

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT 30 MAR 2004

(PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference<br>SHW:LM:FP17010   | <b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416). |  |
| International Application No.<br><b>PCT/AU2002/001585</b>   | International Filing Date<br>(day/month/year)<br>25 November 2002  | Priority Date (day/month/year)<br>21 December 2001 |
| International Patent Classification (IPC) or national classification and IPC<br>Int. Cl. <sup>7</sup> F16H 1/32, 1/46; F16D 65/34 |  |  |
| Applicant<br>AIMBRIDGE PTY LTD et al  |  |  |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- ☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheet(s).

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand

15 July 2003

Date of completion of the report

18 March 2004

Name and mailing address of the IPEA/AU

AUSTRALIAN PATENT OFFICE  
PO BOX 200, WODEN ACT 2606, AUSTRALIA  
E-mail address: pct@ipaustalia.gov.au  
Facsimile No. (02) 6285 3929

Authorized Officer

ASANKA PERERA

Telephone No. (02) 6283 2373

**I. Basis of the report**

1. With regard to the elements of the international application:\*
- ☐ the international application as originally filed.
- ☒ the description, pages 1-20, as originally filed,  
pages , filed with the demand,  
pages , received on with the letter of
- ☒ the claims, pages 21-24, 26, 27, as originally filed,  
pages , as amended (together with any statement) under Article 19,  
pages , filed with the demand,  
pages 25, received on 17 September 2003 with the letter of 16 September 2003
- ☒ the drawings, pages 1/8-8/8, as originally filed,  
pages , filed with the demand,  
pages , received on with the letter of
- ☐ the sequence listing part of the description:  
pages , as originally filed  
pages , filed with the demand  
pages , received on with the letter of
2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.  
These elements were available or furnished to this Authority in the following language which is:
- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).
3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished
4. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.
5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

**IV. Lack of unity of invention**

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
- ☒ not complied with for the following reasons:

See Supplemental Box

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☒ all parts.
- ☐ the parts relating to claims Nos.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/AU2002/001585

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

|                               |                    |     |
|-------------------------------|--------------------|-----|
| Novelty (N)                   | Claims 1-28        | YES |
|                               | Claims             | NO  |
| Inventive step (IS)           | Claims 1-17, 19-28 | YES |
|                               | Claims 18          | NO  |
| Industrial applicability (IA) | Claims 1-28        | YES |
|                               | Claims             | NO  |

### 2. Citations and explanations (Rule 70.7)

The following documents identified in the International Search Report have been considered for the purposes of this report:

D1 : EP 0170505A2

D2 : US 4795002A

#### Inventive Step (IS)

#### Claim 18

D2 discloses an electrically operated brake actuator engaging a cable (1, 3) with an electric motor (20). D1 discloses a use of an orbital transmission\* in an electric motor actuator to produce translational movement of an output member in general. Thus a combination of these documents, such a combination being obvious to a person skilled in the art, render the subject matter of claim 18 lacking an inventive step over the cited prior art.

\* Contrary to the applicant's submission, it is considered that epicyclic gear systems, such as the one disclosed in D1, do constitute a subset of the transmission systems falling under the broad scope of "an orbital transmission:". The planet gears 26 and 52 etc do make an orbital motion around the axis of the corresponding ring gears. Therefore in absence of any further elaboration of the defined orbital transmission system in the claim, the negative comment with regard to the Inventive Step (IS) is maintained.

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

**Continuation of Box IV.3**

The international application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept. In coming to this conclusion the International Examining Authority has found that there are different inventions as follows:

1. Claims 1-17 are directed to an actuator including and electric motor and an orbital transmission. It is considered that a first gear mounted on an eccentric and the arrangement of the first and the second orbit gears and outer gears as defined in claim 1 and 7 comprise a first "special technical feature".
2. Claims 18-28 are directed to a brake actuator with an engaging cable. It is considered that the combination of an electric motor, an orbital transmission, and an output pulley engaging the cable for applying and releasing the brakes according to its sense of rotation comprises a second "special technical feature".

These groups are not so linked as to form a single general inventive concept, that is, they do not have any common inventive features, which define a contribution over the prior art. The common concept linking together these groups of claims is the use of an electric motor and an orbital transmission in an actuator. However this concept is not novel in the light of WO 89/03490A1. Therefore these claims lack unity a posteriori.

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(a) an electric motor having a motor output;  
(b) an orbital transmission having an input  
coupled to the motor output so that the input can  
be driven by the motor, and a transmission output  
from which output rotary power is supplied; and  
(c) an output pulley coupled to the  
transmission output and engaging the cable so  
that when the transmission output rotates in one  
direction, the cable is drawn in to apply the  
brakes, and when the transmission output is  
rotated in the opposite direction, is paid out to  
release the brakes.

19. The brake actuator of claim 18 wherein the  
orbital transmission comprises:

(a) an eccentric;  
(b) a first orbit gear mounted on the  
eccentric;  
(c) a second orbit gear mounted for rotation on  
the eccentric and fixed to the first orbit gear;  
(d) a first outer gear for meshing with the  
first orbit gear; and  
(e) a second outer gear for meshing with the  
second orbit gear;

one of the eccentric and first outer gear forming  
the input to the orbital transmission, and one of the  
second outer gear and eccentric respectively, forming the  
transmission output from the orbital transmission; and  
an output member coupled to the output of the  
orbital transmission for applying a load.

20. The brake actuator of claim 18 wherein the brake  
actuator further includes a spur gear coupled to the input  
of the orbital transmission, and a pinion gear system  
meshing with the spur gear and driven by the motor